

Remarks/Arguments:

This is a reply to the office action of October 4.

Claims 28 - 50 stand rejected over prior art; however, the Examiner indicated that amending the claims to recite the open riser and its function according to the understood intention of the applicant would overcome the prior art of record. We have therefore amended claims 28, 41 and 45 above in accordance with this suggestion. Editorial changes, including the deletion of reference numerals, have been made in those and other claims as well.

The invention is mainly intended to cover a new casting process which combines a traditional gravity casting process with a traditional low pressure casting process.

In a gravity casting process, the mold is provided with a lateral duct or channel for feeding molten metal from above to the mold cavity, for example by means of a crucible. However, in order to compensate for the shrinkage of the cooled metal and for releasing gases, the mold has at least a second duct which extends upwards from the cavity and which is open towards the outside (the atmosphere). These ducts are commonly known as "open risers". Molten metal is poured into the mold cavity (corresponding to the figure of the cast), in such a way it fills the cavity and the open risers. Afterwards, the feeding of the metal through the feeding channel is stopped and, as the metal shrinks, the cavity is fed with the metal contained in the open risers, which, by gravity, tends to return towards the cavity.

In a low pressure casting process, the feeding channel or duct connects the mold cavity with a furnace placed under the mold. Feeding risers open at the top of the mold, that is opposite to the feeding channel, are completely absent, because it's the pressure exerted on the molten metal in the furnace that allows to compensate for the shrinkage.

The process of the invention can be seen as a modified low pressure casting process, since it works like a low pressure process but has the open feeding risers like a gravity casting process. Therefore it has the advantages of both the technologies. Moreover, a mold for this new process can be converted to a mold for a traditional gravity casting process simply by closing, at the bottom of the mold, the feeding channel to be connected to the furnace below the mold.

The new process also requires the use of sealing means for closing the top of the open risers and of suction means for removing fumes and gas from the mold.

According to one aspect of the invention, the removal of fumes and gas from the mold could be applied also to a traditional low pressure casting process. At this end, the metal male mold component forming the upper part of the mold for this technology is crossed by channels (claim 49), which however do not act as gravity feeding risers.

The casting machine does not comprise the mold; however, claim 41 is deemed patentable for the tilting arm recited, with the sealing means for the open risers. None of the prior art documents discloses such a casting machine. Moreover, they refer to completely different casting processes (a traditional low pressure process (Voisin) and a centrifugal casting process (Farkas)).

We believe the claims, as amended, define an invention which is patentable over the prior art of record, and that this application is now in condition for allowance.

Respectfully submitted,

/Charles Fallow/

Charles W. Fallow

Reg. No. 28,946

Shoemaker and Mattare, Ltd.
10 Post Office Road - Suite 100
Silver Spring, Maryland 20910

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